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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,398	02/11/2005	Soichi Kuwahara	075834.00506	6054
33448	7590	06/27/2007		
ROBERT J. DEPKE LEWIS T. STEADMAN ROCKEY, DEPKE, LYONS AND KITZINGER, LLC SUITE 5450 SEARS TOWER CHICAGO, IL 60606-6306			EXAMINER LEBRON, JANNELLE M	
			ART UNIT 2861	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/524,398	Applicant(s) KUWAHARA ET AL.	
	Examiner Jannelle M. Lebron	Art Unit 2861	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 February 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-19 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1, 12, 13 and 16, drawn to a liquid apparatus and method comprising principal control means for ejecting liquid droplets from a nozzle and auxiliary control means and ejecting droplets in at least one direction different from that controlled by the principal control means and individually setting whether the auxiliary control is executed, classified in class 347, subclass 5.
  - II. Claims 2, 5-11, 14, 15 and 17, drawn to a liquid apparatus and method comprising reference-direction setting means for individually setting one reference direction for each of the unit head among a plurality of ejection directions, classified in class 347, subclass 6.
  - III. Claims 3, 5-11, 14, 15 and 18, drawn to a liquid apparatus and method comprising ejecting-angle setting means for individually setting liquid droplets established by ejection direction changing means for each of the unit heads, classified in class 347, subclass 9.
  - IV. Claims 4-11, 14, 15 and 19, drawn to a liquid apparatus and method comprising ejecting-angle setting means for individually setting liquid droplets established by ejection direction changing means for each of the unit heads and reference-direction setting means for individually setting

one reference direction for each of the unit head among a plurality of ejection directions, classified in class 347, subclass 5.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and IV are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the apparatus does not need ejecting-angle or reference-angle setting means in order to function properly. The subcombination has separate utility such as controlling the exact angle and direction of droplets when being ejected.

The examiner has required restriction between combination and subcombination inventions. Where applicant elects a subcombination, and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Inventions II and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination III has separate utility such as setting the angle of discharge of the droplet in accordance with the ejection direction changing means. See MPEP § 806.05(d).

Inventions II and IV are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination IV has separate utility such as setting the angle of discharge of the droplet in accordance with the ejection direction changing means. See MPEP § 806.05(d).

The examiner has required restriction between subcombinations usable together. Where applicant elects a subcombination and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

2. Upon election of Group II, III or IV, the applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 2, 3 or 4 is generic.

The species are independent or distinct because each species discloses a different set of requirements that require separate search.

- Embodiment A: comprising ejection control means for controlling liquid-droplet ejection in that a pixel line is formed by ejecting liquid droplets in different directions from at least two different liquid ejection parts arranged in the vicinity so as to land liquid droplets on the same pixel line using the ejection direction changing means, or the one pixel line or one pixel is formed by landing liquid droplets on the same pixel region so as to form the pixel using at least two different liquid ejection parts arranged in the vicinity.
- Embodiment B: comprising second ejection control means for controlling liquid-droplet ejection in that when liquid droplets are landed on a pixel region, for each liquid-droplet ejection from the liquid ejection part, any one of M different landing positions (M: integers of 2 or more), at least part of which is included within the

pixel region, is determined as a landing position of liquid droplets in the arranging direction of liquid ejection parts in the pixel region so that the ejection is controlled using the ejection direction changing means so as to land liquid droplets at the determined position.

- Embodiment C: comprising number of pixels increasing means in that using the ejecting-direction changing means, liquid droplets ejected from each liquid ejection part are controlled so as to land at two or more different positions in the arranging direction of liquid ejection parts, so that the number of pixels is increased more than that formed by landing liquid droplets from each liquid ejection part at one position.
- Embodiment D: comprising auxiliary control means for controlling liquid droplets to be ejected in a direction different from that of liquid droplets ejected by the principal control means by supplying energy to the bubble generating means in a different way from that of the principal control means.
- Embodiment E: wherein ejection direction changing means comprises a circuit having a switching element connected between the heating elements connected together in series, and controls the ejection direction of liquid droplets to be ejected in at least two directions in the arranging direction of liquid ejection parts by passing electric current between the heating elements through the circuit or by discharging electric current from between the heating elements through the circuit so as to control electric current for supplying to each heating element.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

3. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the

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record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Communication with the USPTO***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jannelle M. Lebron whose telephone number is (571) 272-2729. The examiner can normally be reached on Monday thru Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



*Jannelle M. Lebrón*

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06/22/2007



MATTHEW L. LIPP  
SUPERVISORY PATENT EXAMINER